

Applicant : Ching-Hsiang Hsu et al.  
Serial No. : 09/778,672  
Filed : February 7, 2001  
Page : 2 of 9

Attorney's Docket No.: 12774-002001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-23. (Cancelled).

24. (Previously presented) A method of decreasing the production of IgE in a subject exposed to a dust mite allergen, the method comprising:

orally administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes a dust mite allergen and (ii) a promoter operably linked to the nucleotide sequence, wherein the promoter is functional in the non-pathogenic, Gram-positive bacterium; and

expressing the allergen in the non-pathogenic, Gram-positive bacterium while the non-pathogenic, Gram-positive bacterium is in the subject in an amount sufficient to suppress allergen-specific IgE production in the subject upon subsequent exposure to the allergen.

25. (Previously presented) The method of claim 24 in which the bacterium is of the genus *Lactobacillus*, *Streptococcus*, or *Bifidobacterium*.

26. (Previously presented) The method of claim 25 in which the bacterium is of the genus *Lactobacillus*.

27. (Previously presented) The method of claim 26 in which the bacterium is *Lactobacillus acidophilus*.

28. (Previously presented) The method of claim 24 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*, *Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

Applicant : Ching-Hsiang Hsu et al.  
Serial No. : 09/778,672  
Filed : February 7, 2001  
Page : 3 of 9

Attorney's Docket No.: 12774-002001

29. (Previously presented) The method of claim 28 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*.

30. (Previously presented) The method of claim 24, wherein the allergen is a protein allergen.

31. (Previously presented) The method of claim 24, wherein the allergen is a Der p 5 allergen.

32. (Previously presented) The method of claim 29 in which the allergen is Der p 5.

33. (Previously presented) The method of claim of claim 24, wherein the promoter is a constitutive promoter.

34. (Cancelled).

35. (Previously presented) The method of claim 26, wherein the bacterium is administered in a yogurt.

36. (Previously presented) A method of decreasing the production of IgE in a subject exposed to a dust mite allergen, the method comprising:

orally administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and

expressing the allergen in the lactic acid bacterium while the lactic acid bacterium is in the subject in an amount sufficient to suppress allergen-specific IgE production in the subject upon subsequent exposure to the allergen.

Applicant : Ching-Hsiang Hsu et al.  
Serial No. : 09/778,672  
Filed : February 7, 2001  
Page : 4 of 9

Attorney's Docket No.: 12774-002001

37. (Previously presented) The method of claim 36 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*, *Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

38. (Previously presented) The method of claim 36 in which the dust mite allergen is an allergen of dust mite of *Dermatophagoides* genus.

39. (Previously presented) The method of claim 36 in which the bacterium is of the *Lactobacillus* genus.

40. (Cancelled).

41. (Previously presented) The method of claim 40 in which the bacterium is administered as a yogurt composition.

42. (Previously presented) The method of claim 36 in which the subject is a human subject.

43. (Previously presented) A method of decreasing the production of IgE in a subject exposed to an protein aeroallergen, the method comprising:

orally administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes a protein aeroallergen and (ii) a promoter operably linked to the nucleotide sequence, wherein the promoter is functional in a bacterial cell; and

expressing the protein aeroallergen in the non-pathogenic, Gram-positive bacterium while the non-pathogenic, Gram-positive bacterium is in the subject in an amount sufficient to suppress aeroallergen-specific IgE production in the subject upon subsequent exposure to the protein aeroallergen.

Applicant : Ching-Hsiang Hsu et al.  
Serial No. : 09/778,672  
Filed : February 7, 2001  
Page : 5 of 9

Attorney's Docket No.: 12774-002001

44. (Previously presented) A method of relieving bronchopulmonary congestion in a subject exposed to a dust mite allergen, the method comprising:

orally administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and

expressing the allergen in the lactic acid bacterium while the lactic acid bacterium is in the subject in an amount sufficient to relieve bronchopulmonary congestion in the subject upon subsequent exposure to the dust mite allergen.

45. (Previously presented) The method of claim 44 in which the bacterium is of the *Lactobacillus* genus, and the dust mite allergen is *Dermatophagoides pteronyssinus*.

46. (Previously presented) The method of claim 24, 26, 27, or 29 wherein the promoter is the erythromycin resistance gene promoter, *IdhL* promoter, or P25 promoter.

47. (Previously presented) The method of claim 45 wherein the bacterium is *Lactobacillus acidophilus*.

48. (Previously presented) The method of claim 43 wherein the protein aeroallergen is a protein component of a pollen, mold, animal dander, or insect.

49. (Previously presented) The method of claim 24 or 43 wherein the bacterium can adhere to intestinal mucosa.